

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

Claims 1-16. (Canceled)

17. (New) A wireless communication apparatus comprising:

a plurality of antennas that transmit modulation signals; and

a controller that controls a control signal of said modulation signals based on an eigenvalue corresponding to a channel matrix generated using said modulation signals received by a communicating party.

18. (New) The wireless communication apparatus according to claim 17, wherein said controller comprises a modulation scheme controller that determines a modulation scheme applied to said modulation signals and outputs determined information as the control signal.

19. (New) The wireless communication apparatus according to claim 17, wherein said controller comprises an antenna controller that selects an antenna transmitting said modulation signals and outputs determined information as the control signal.

20. (New) The wireless communication apparatus according to claim 17, wherein said controller comprises a transmission power controller that determines transmission power of said modulation signals and outputs determined information as the control signal.

21. (New) The wireless communication apparatus according to claim 17, wherein said controller comprises a communication scheme controller that determines a

number of said modulation signals and outputs determined information as the control signal.

22. (New) The wireless communication apparatus according to claim 17, wherein said controller comprises a coding scheme controller that determines a coding scheme applied to said modulation signals and outputs determined information as the control signal.

23. (New) The wireless communication apparatus according to claim 17, wherein said controller comprises an antenna characteristic controller that determines characteristics of an antenna transmitting said modulation signals and outputs determined information as the control signal.

24. (New) The wireless communication apparatus according to claim 17, wherein said controller controls said control signal according to a reception electric field strength calculated based on an eigenvalue of said channel matrix and used in demodulation processing.

25. (New) A wireless communication method for a communication system including multi antennas, the communication method comprising:

estimating a reception electric field strength of the communication system;

calculating an effective reception electric field strength which comprises a reception electric field strength configured for demodulation processing, the calculating comprising calculating an eigenvalue corresponding to a channel matrix of channel estimation values;

controlling a predetermined parameter based on the reception electric field strength of the communication system and the effective reception electric field strength; and

transmitting a signal processed with the determined parameter and calculating the effective reception electric field strength based on the eigenvalue.

26. (New) The communication method according to claim 25, wherein the controlling comprises controlling a modulation scheme as the control of the predetermined parameter and the transmitting comprises modulating a signal with the controlled modulation scheme.

27. (New) The communication method according to claim 25, wherein the controlling comprises selecting a transmission antenna as the control of the predetermined parameter and the transmitting comprises transmitting a signal from the selected transmission antenna.

28. (New) The communication method according to claim 25, wherein the controlling comprises controlling transmission power as the control of the predetermined parameter and the transmitting comprises transmitting a signal amplified to the controlled transmission power.

29. (New) The communication method according to claim 25, wherein the controlling comprises determining a communication scheme from either MIMO communication or space time coding communication as the control of the predetermined parameter and the transmitting comprises transmitting a signal in the determined communications scheme.

30. (New) The communication method according to claim 25, wherein the controlling comprises controlling a coding method as the control of the predetermined parameter and the transmitting comprises transmitting a signal encoded in the controlled coding method.

31. (New) The communication method according to claim 25, wherein the controlling comprises controlling antenna characteristics as the control of the predetermined parameter and the transmitting comprises transmitting a signal with the controlled antenna characteristics.